

1           1.    A method comprising:  
2                   protecting a polysilicon gate structure with a  
3 mask to prevent the formation of a silicide on the gate  
4 structure.

1           2.    The method of claim 1 including protecting a  
2 polysilicon gate structure with a hard mask to prevent the  
3 formation of a silicide.

1           3.    The method of claim 2 including protecting the  
2 polysilicon gate structure with a nitride hard mask to  
3 prevent the formation of a silicide.

1           4.    The method of claim 1 including selectively  
2 protecting at least one polysilicon gate structure with a  
3 mask to prevent the formation of a silicide and removing  
4 the mask over other gate structure to form a silicide on  
5 the other gate structure.

1           5.    The method of claim 1 including removing said  
2 mask after forming a silicide.

1           6.    The method of claim 5 including removing said  
2 mask by etching.

1           7.    The method of claim 5 including removing said  
2   mask by polishing.

1           8.    The method of claim 5, including polishing said  
2   mask then etching said mask.

1           9.    The method of claim 1 including replacing the  
2   polysilicon gate structure with a metal gate replacement.

1           10.   The method of claim 1 including forming the  
2   polysilicon gate structure including a patterned  
3   polysilicon portion and an underlying dielectric layer.

1           11.   The method of claim 10 including protecting the  
2   underlying dielectric layer from overetching.

1           12.   The method of claim 1 including forming spacers  
2   on either side of said polysilicon gate structure to  
3   prevent lateral silicide formation.

1           13.   The method of claim 5 including using a two-step  
2   polish to remove said mask including a first step using a  
3   harder pad and a second step using a softer pad.

1        14. A method comprising:  
2                selectively preventing the formation of a  
3 silicide on one polysilicon gate structure and forming a  
4 silicide on another gate structure.

1        15. The method of claim 14 including replacing the  
2 polysilicon gate structure without silicide with a metal  
3 gate replacement.

1        16. The method of claim 15 including preventing the  
2 formation of silicide by masking the polysilicon gate  
3 structure to be replaced with metal.

1        17. The method of claim 16 including protecting a  
2 polysilicon gate structure with a hard mask to prevent the  
3 formation of a silicide.

1        18. The method of claim 17 including protecting the  
2 polysilicon gate structure with a nitride hard mask to  
3 prevent the formation of a silicide.

1        19. The method of claim 14 including removing said  
2 mask after forming a silicide.

1           20. A semiconductor wafer comprising:  
2               a semiconductor substrate;  
3               a first polysilicon gate structure formed over  
4 said semiconductor substrate;  
5               a second polysilicon gate structure formed over  
6 said semiconductor substrate; and  
7               a mask over said first polysilicon gate structure  
8 and said second polysilicon gate structure being maskless.

1           21. The wafer of claim 20 wherein said mask is a hard  
2 mask.

1           22. The wafer of claim 21 wherein said mask is a  
2 nitride hard mask.

1           23. The wafer of claim 20 including a dielectric  
2 layer between said gate structures and said semiconductor  
3 substrate.

1           24. The structure of claim 20 wherein said second  
2 gate structure has silicide formed thereon and said first  
3 gate structure is substantially free of silicide.